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ABSTRACT

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USING DUAL TRAINERS TO REMEDIATE
LANGUAGE PROBLEMS OF THE RETARDED

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Paper presented at the American Psychological Association Convention, 1981

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ABSTRACT

A training program, using dual trainers, was used to reduce inappropriate verbalizations and increase appropriate verbal responses of profoundly handicapped persons. During training, one trainer asked questions and the other trainer gave verbal prompts. This method was evaluated with three Experiments: Experiment I used dual trainers with three communication problems (echolalia, elective mutism, and inappropriate speech); Experiment II used dual trainers — one professional and one para-professional; and Experiment III compared a dual trainer condition with a single trainer condition. The results of all three experiments demonstrated the validity of the dual training condition. Justification for the use of dual trainers is presented along three dimensions: facilitation of training, control of problem behaviors, and teacher training.

USING DUAL TRAINERS TO REMEDIATE LANGUAGE PROBLEMS OF THE RETARDED

Operant training techniques are frequently used to remediate a variety of speech and language deficits (Garcia & DeHaven, 1974). These deficits have included problems, such as echolalia (Ausman & Gaddy, 1974; Carr, Schreibman, & Lovaas, 1975; Palyo, Cooke, Schuler, & Apolloni, 1979; Risley & Wolf, 1967; Schreibman & Carr, 1978; Tramontana & Shivers, 1971), elective mutism (Sanok & Striefel, 1979; Wulbert, Nyman, Snow, & Owen, 1973), and inappropriate speech (Barton, 1970, 1975).

The major common denominator for these operant training techniques in language training is the method: use of reinforcement, prompting, shaping, and fading (Garcia & DeHaven, 1974). Typically, these techniques have involved one trainer presenting the training stimuli, prompting a correct response, fading the prompt, shaping correct responses, and delivering the consequences for responding. Palyo, et al. (1979) used a tape recorder to prompt correct responses and reduced the volume to fade the prompt. They pointed to the potential for confusion to the trainees when one person presented both the training stimuli and the prompts for correct responding. They demonstrated the effectiveness of a trainer presenting the training stimuli and a tape recorder giving the prompts for a training program for three handicapped children exhibiting echolalia.

The present study attempted to evaluate the effectiveness of one trainer presenting the training stimuli and a second trainer giving the prompts. Three experiments were conducted: Experiment I, evaluating the viability of using professionals as trainers in the treatment of the above three language problems; Experiment II, replicating Exp. I but using a paraprofessional paired with a professional for treating the above three

language problems; and Experiment III, comparing the effects of using one trainer versus two trainers for a language training technique for echolalia and inappropriate speech.

EXPERIMENT I

The experiment was designed to assess the effectiveness of dual trainers in modifying verbal behavior, with the authors serving as trainers. No attempt was made to compare this procedure with other previously developed techniques.

METHOD

Subjects and Setting

Three students in a residential facility for the mentally retarded participated. All exhibited periodic episodes of intense aggression which had curtailed their involvement in academic programs. Carol was a 22-year-old female, whose speech consisted almost entirely of delayed and immediate echolalic responses. She reliably repeated any question which was asked of her. Mary, a 15-year-old female, demonstrated a high rate of spontaneous verbalization, but most of these responses were unrelated to their environmental antecedents. James was a 22-year-old male who seldom spoke either spontaneously or in response to questions, but his sporadic statements evidenced the potential for a limited functional vocabulary.

Carol and James were both functioning cognitively and adaptively within the profound range of mental retardation (Stanford-Binet Intelligence Scale, Form L-M: ratio IQ's = 13 and 12, respectively; Vineland Social Maturity Scale: Social Quotients = 13 and 15, respectively). Mary functioned within the profound range cognitively and the severe range adaptively (Stanford-Binet Intelligence Scale, Form L-M: ratio IQ = 16 and Vineland Social Maturity Scale: Social Quotient = 30).

All sessions occurred in a large classroom (10 meters by 12 meters), with one student and two trainers seated at a table (1.25 meters square).

Materials

The stimulus questions were selected from five categories: picture identification, body parts, numeral identification, prepositional usage, and social amenities. Object referents were paired with the first four categories: body parts — a rag doll, 30 cm. tall; picture identification — printed color figures on white backgrounds, 23 cm. square; numeral identification — plastic figures with black numerals mounted on blue backgrounds, 10 cm. square; and prepositional usage — a plastic doll, 4 cm. tall, and a yellow, opaque, 16-ounce drinking cup. Prepositions were demonstrated by placing the doll in, on, or under the cup.

Design

The experimental procedure was introduced sequentially across the five categories in a multiple baseline design (Baer, Wolf, & Risley, 1969). For each student, baseline rates of correct responding to a list of questions from the categories listed above were determined. A group of questions drawn from this list was then trained, while baseline data continued to be gathered on the remaining groups. Training on a particular group was suspended as soon as the criterion rate of correct responding was attained, and a new group was then trained. The groups were thus trained successively until the list of questions was exhausted.

Procedures

The trainers generated a list of 15 stimulus questions which were divided equally among the five categories outlined above. A target response was designed for each question, and an object referent was specified for all except those in the social amenities category (see Table 1).

For both baseline and training sessions, a single student was seated in front of the table. The first trainer was seated across the table from the student and a second was seated directly behind the student.

During the initial baseline condition, the first trainer stated three randomly ordered target responses while displaying their physical referents. He then asked the three corresponding stimulus questions, again in the presence of their object referents, and scored the student's responses (correct, incorrect, imitative, or none). The first trainer also delivered praise and a consumable reinforcer, which had previously been identified with a reinforcer preference test, contingent on remaining seated and on-task for the series of questions. There were no consequences for correct versus incorrect responding. This process was then repeated until all 15 questions had been scored. All responses were scored independently by the second trainer in order to measure the reliability of the scoring.

Prior to training, the stimuli for each student were divided into sets of three which generally consisted of questions from distinct categories (see Table 1). This arrangement was intended as a control for possible differences in difficulty among the categories. Mary was trained on all 15 questions, but the social amenities category was eliminated for Carol and James. Also, for Carol and James, training occurred across pairs of questions within each set (three pairs per set), whereas Mary was trained across entire sets of three questions. Perceived disparities in verbal responsiveness accounted for these distinctions.

During the training condition, the first trainer stated the answers to the two or three questions being trained at the outset of each session. He then asked the questions in a cyclical fashion, such that each was presented an equal number of times during a given session. Across these cycles, the

order of presentation was randomized. As in the baseline condition, the object referents were displayed while stating the answers and asking the questions.

For each training trial, the second trainer verbally prompted the correct response to the stimuli. As a function of acquisition rate, the prompts were faded in volume, syllabic completeness, and temporal immediacy. The first trainer dispensed social and primary reinforcement contingent on correct responding. An oral "no" from the first trainer was the consequence for an incorrect response. Following an incorrect response, the question and its prompt were repeated until the target response was obtained. Training trials were regarded only as correct or incorrect, and scores were recorded by the first trainer.

The above process continued until all responses to each question being trained were correct for three out of five consecutive training cycles. At this point, the questions were asked in random order without presentation of the answer statements, prompts, or reinforcement. The student's responses were then scored across the same classes as during baseline, i.e., correct, incorrect, imitative, or none. Upon completion of such a probe cycle, training resumed in the manner outlined above. A given session was terminated when all responses were correct across any two probe cycles, or when an arbitrary limit of six probe cycles was reached. Each student received one training session per day, Monday-Friday.

For Carol and James, the next pair of questions was introduced when 80% of all probe trials were correct across two consecutive training sessions. The same criterion applied for their advancement to a new set of three paired questions and for Mary's progression to another complete set of three.

Probe data were collected for all questions, trained and untrained, on Friday of each week following the completion of training sessions. This procedure was identical to the initial baseline condition, with the exception of reliability recording by the second trainer.

Upon completion of all training, maintenance and generalization probes were conducted, again following the baseline procedure. Maintenance was assessed by the trainers in the original classroom. Two types of generalization were measured: in the classroom with novel questioners substituting for the first trainer and in the students' living area with both trainers participating. The novel questioners were drawn from direct care personnel in the trainees' residential unit, and were rotated such that no one served twice for any given student.

Reliability

The mean interobserver reliability, using percent agreement (calculated by dividing the number of agreements by the number of agreement plus disagreements of independent recorders and multiplying this figure by 100), was 93% (ranging from 80% to 100%).

RESULTS

Carol

Figure 1 shows Carol's performance on correct and imitative responding during pre- and post-training probes for the four sets of questions. Carol responded correctly on 11% of the pre-training probe trials across the four sets of questions (mean of each set: 0%, 0%, and 23%, respectively). Also during pre-training, she imitated on 53% of the probe trials (mean of each set: 75%, 80%, 50%, and 32%, respectively). For post-training, Carol responded correctly on 42% of the probe trials for the four sets of questions

(mean of each set: 64%, 26%, 26%, and 45%, respectively). She imitated on 28% of the post-training probe trials (mean of each set: 18%, 33%, 26%, and 37%, respectively).

The results of Carol's performance during the course of acquisition across the four sets of questions are shown in Figure 2. The first pair of questions required a mean of 4.5 sessions to reach criterion (5 sessions, 6 sessions, 2 sessions, and 5 sessions, respectively). On the second pair of questions, Carol reached criterion within a mean of 2.25 sessions (2 sessions, 3 sessions, 2 sessions, and 2 sessions, respectively). Carol attained criterion on the third pair of questions within a mean of 2.25 sessions (3 sessions, 2 sessions, 2 sessions, and 2 sessions, respectively).

Figure 1 shows the results of probes during maintenance (in the classroom with the original trainer) for the first 4 days, 1 week, and 1 month following the completion of training. In the classroom with the original trainer (maintenance), Carol responded correctly on 75% of the probe trials the day after training to 8.3% of the probe trials 1 month after training. In the two generalization conditions (in the classroom with a novel trainer and in the home unit with the original trainer), her rate of correct responses ranged from 33.3% and 58.3%, respectively, the day after training to 0% and 8.3%, respectively, one month after training. In the classroom with the original trainer, Carol imitated from 8.3% of the probe trials the day after training to 66.7% one month after training. In the two generalization conditions (in the classroom with a novel trainer and in the home unit with the original trainer), her rate of imitative responses increased from 66.7% and 16.7% of the probe trials, respectively, to 91.7% and 75.0%, respectively, over the six follow-up sessions.

Mary

Figure 3 shows Mary's performance on correct responding during pre- and post-training for the five sets of questions. Mary responded correctly on 13.3% of the pre-training probe trials across the five sets of questions (mean of each set: 4.7%, 4.7%, 12.3%, 8.2%, and 36.6%, respectively). During post-training, Mary responded correctly on 63.1% of the probe trials for the five sets of questions (mean of each set: 62.7%, 33.0%, 81.1%, 66.1%, and 72.8%, respectively).

The results of Mary's performance during the course of acquisition across the five sets of questions are shown in Figure 4. The first 3 sets of questions required 2 sessions to reach criterion, the fourth set, 4 sessions, and the fifth set 11 sessions.

Figure 3 shows the results of probes during maintenance (in the classroom with the original trainer) for the first 4 days, 1 week, and 1 month following the completion of training. In the classroom with the original trainer (maintenance), Mary responded correctly on 73.3% to 60.0% of the probe trials 1 month after training. In the two generalization conditions (classroom with a novel trainer and the home unit with the original trainer), her rate of correct responses ranged from 66.7% and 60.0%, respectively, the day after training to 53.3% and 53.3%, respectively, 1 month after training.

James

Figure 5 shows James' performance on correct and no responding (i.e., elective mutism) during pre- and post-training for the four sets of questions. James responded correctly on 17.0% of the probe trials across the four sets of questions (mean of each set: 6.6%, 11.0%, 25.3%, and 25.2%, respectively). Also during pre-training, he failed to respond on 44.0% of the probe trials (mean of each set: 46.2%, 66.3%, 33.0%, and 30.8%, respectively). For

post-training, James responded correctly on 51.4% of the probe trials (mean of each set: 64.4%, 52.5%, 35.5%, and 52.9%, respectively). He failed to respond on 12.9% of the post-training probe trials (mean of each set: 15.2%, 21.5%, 15.2%, and 9.9%, respectively).

The results of James' performance during the course of acquisition across the four sets of questions are shown in Figure 6. The first pair of questions required a mean of 4.0 sessions to reach criterion (4 sessions, 4 sessions, 3 sessions, and 5 sessions, respectively). On the second pair of questions, James reached criterion within a mean of 3.25 sessions (3 sessions, 3 sessions, 5 sessions, and 2 sessions, respectively). James attained criterion on the third pair of questions within a mean of 1.5 sessions (1 session, 2 sessions, 1 session, and 2 sessions, respectively).

Figure 5 shows the results of probes during maintenance (in the classroom with the original trainer) for the first 4 days, 1 week, and 1 month following the completion of training. In the classroom with the original trainer (maintenance), James responded correctly on 58.3% of the probe trials the day after training to 58.3% of the probe trials 1 month after training. In the two generalization conditions (in the classroom with a novel trainer and in the home unit with the original trainer), his rate of correct responses ranged from 33.3% and 58.3%, respectively, the day after training to 33.3% and 25.0%, respectively, 1 month after training. In the classroom with the original trainer, James failed to respond on 8.3% of the probe trials the day after training to 0.0% one month after training. In the two generalization conditions (in the classroom with a novel trainer and in the home unit with the original trainer), his rate of not responding was 66.7% and 8.3% of the probe trials, respectively, to 41.7% and 8.3%, respectively, over the five following sessions.

DISCUSSION

Study I suggests that a method using dual trainers to train correct responding to questions with an object referent is a viable procedure. This method was demonstrated to be effective with three types of speech disorders, i.e., echolalia, inappropriate speech, and elective mutism. During training, correct responding consistently improved and inappropriate responding consistently decreased. Some generalization during training across sets of questions was detected. During the acquisition phase, less time to reach criterion was typically required for training on question pairs within sets of questions for Carol and James. This did not hold true for Mary, but a medication change during training on the fourth set of questions and just prior to the fifth set of questions may be a possible explanation for the extended training phase for Sets Four and Five. Maintenance and generalization did show some deterioration after training, suggesting the necessity of including maintenance and generalization aspects into the training program.

Two questions still needed to be addressed. First, would this program be as effective if para-professional trainers were included (e.g., direct care staff or teacher assistants)? Second, how would this method compare with the more standard language training procedure using just one trainer? Experiments II and III addressed these questions.

EXPERIMENT II

The authors were interested in the utility of nonprofessional personnel as language modifiers. This study was then designed to replicate the procedure in Exp. I, with a direct care staff member serving as the first trainer.

METHOD

Subject and Setting

Carol, of Exp. I, was the only subject, and the same classroom and

Materials

Carol was trained in the same four question categories as during Experiment I (see Table 1): body parts, picture identification, numeral identification, and prepositional usage. The physical stimuli also duplicated those used for Experiment I.

Design

As in Experiment I, the study followed a multiple baseline format across four groups of three questions each.

Procedures

One week prior to the initiation of Experiment II, a "Health Care Technician Supervisor" was selected from Carol's residential unit. This person was then prepared to assume the role of first trainer, as described in the previous experiment. Instruction was provided by the first trainer from Experiment I in two 30-minute sessions, which consisted of oral explanation and role-playing.

Since this experiment emphasized only the performance of the non-professional trainer, the stimuli, target responses, reinforcers, and procedures were all identical to those used in Exp. I. The first trainer from the prior study served as second trainer (responsible for prompting), and the direct-care employee served as first trainer (responsible for presentation of target responses, stimuli, reinforcement, scoring, and recording). In order to allow for extinction of the responses learned previously, baseline data were collected 3 months following Carol's final Experiment I training sessions.

As in Experiment I, reliability was assessed by having both trainers score responses during the initial baseline sessions. The first set of

three questions was trained in pairs according to Carol's original routine. Due to her relatively rapid acquisition of these responses, sets two through four were trained as complete sets. This latter procedure paralleled that used with Mary in Experiment I. Weekly, maintenance, and generalization probes were also conducted according to the previous format, with the second trainer from Experiment I serving for generalization to questioner probes.

Reliability

The mean interobserver reliability, using percent agreement (calculated by dividing the number of agreements plus disagreements of independent recorders and multiplying this figure by 100) was 100%.

RESULTS

During pre-training, Carol responded correctly on 13.0% of all the probe trials across all four sets of questions (mean for each set: 0.0%, 4.1%, 13.0%, and 19.8%, respectively). During post-training, Carol responded correctly on 71.2% of the probe trials across all four sets of questions (mean for each set: 66.5%, 69.4%, 71.2%, and 100.0%, respectively). During pre-training, Carol imitated on 9.7% of the post-training probe trials across the four sets of questions (mean of each set: 16.5%, 0.0%, 14.1%, and 0.0%, respectively).

The first set of three questions was trained in pairs and required 11 days to reach criterion. In the next three sets of questions, all three questions were trained simultaneously. For Set Two, Set Three, and Set Four; 6, 9, and 4 days were required to complete training, respectively.

In the classroom with the original trainer (maintenance), Carol responded correctly on 50% of the probe trials 12 days after training and on 66.7% of the probe trials 36 days after training. In the two generalization conditions

(in the classroom with a novel trainer and in the home unit with the original trainer), her rate of correct responses ranged from 41.7% and 33.3%, respectively, 12 days after training, to 16.7% and 75.0%, respectively 36 days after training. During maintenance, Carol imitated on 25% of the probe trials 12 days after training and on 16.7% after 36 days. During generalization, she imitated on 25.0% of the trials 12 days after training and 0.0% of the trials 36 days after training, in the home unit with the original trainer. In the classroom with a novel trainer, she imitated on 16.7% of the trials 12 days after training and 33.3% of the trials 36 days after training.

DISCUSSION

The results of the Experiment II show that when using dual trainers, having one professional trainer (psychology staff) and one para-professional (direct care staff) was an effective means of training correct verbal responses to questions and reducing the frequency of imitative responses. When these responses have been previously trained, some generalized effects are noted in the responses to questions in Set Three and Set Four. After the completion of training on questions in Set One and Set Two, no more imitation occurred for questions in Set Three and Set Four. The generalized effects of correct responding were not as apparent.

Because of the acquisition effects during Set One, it was decided that rather than having to train pairs of questions, all three questions could be trained simultaneously. No difficulties were encountered with this change. In fact, Set Four required only 4 days to complete training. These effects showed considerable durability of time (maintenance) and conditions (generalizability).

EXPERIMENT III

Experiments I and II demonstrated the effectiveness of dual trainers in teaching verbal skills. This final study was designed to compare the results of working with single versus dual trainers.

METHOD

Subjects and Setting

Carol and Mary, as described in Experiment I, served as subjects. Training took place in the same classroom used during Exp. I and II.

Materials

Stimulus questions and their object referents were selected from the categories of picture identification and letter identification (see Table 1). The pictures were of the same type as those used in Experiment I and II, and the letters were of the same design as the numerals used in the previous experiments.

Design

A simultaneous treatment design (Kazdin, 1977; Kazdin & Hartmann, 1978) was used to compare the single and dual trainer models. Both students were simultaneously trained to criterion under single and dual trainer conditions, with different sets of questions assigned to each condition. Carol was first trained in letter identification with a single trainer, and in picture identification with dual trainers. For Mary, the single trainer worked on pictures and dual trainers on letters. Upon completion of this first phase, the assignment of question categories to training conditions was reversed for both students. New questions were then trained to criterion. Each student received one training session per day, Monday-Friday, in each of the two conditions. The treatment times were alternated between morning and afternoon, such that neither the single trainer condition nor dual trainer condition was associated with a consistent time of day.

The first trainer for Exp. I worked as the single trainer during one phase of both Carol's and Mary's programs, and also as the second trainer during one phase of both. A third staff member was recruited for the remaining single and second trainer roles. This person was employed as a non-professional, direct care supervisor, and was prepared in the manner outlined for Experiment II. The second trainer from Exp. I served as the first trainer in all of the phases.

Procedures

A pool of 20 stimulus questions was compiled with equal numbers assigned to the two categories of letter identification and picture identification. None of these stimuli duplicated those used in either of the previous experiments. As before, each question was accompanied by a specific target response and an object referent (see Table 1).

Baseline data were collected for each student, using the pair of trainers which was assigned to their first phase dual trainer condition. The first baseline sessions were scheduled four months following Carol's completion of Experiment II, and 10 months after Mary's involvement in Experiment I. During baseline sessions, the first trainer demonstrated five randomly ordered target responses, followed by presentation of the corresponding stimulus questions. The object referents were displayed in conjunction with both target responses and questions, and the student's responses were scored as either correct or incorrect. Praise and an edible reinforcer were delivered by the first trainer contingent on the student's remaining seated and on-task throughout each series of five questions. As in Experiment I and II, inter-rater reliability was measured by having both trainers score during initial baseline. After all 20 questions had been asked, the process was repeated such that each item received two trials per baseline session.

Following the completion of initial baseline, six questions from each of the two categories were selected for each student's training. The questions chosen were those with the lowest rates of correct responding during baseline, with none of the rates exceeding 16.7% average across all sessions. They were then assigned in sets of three to the experimental conditions outlined above.

Dual trainers positioned themselves and functioned in the same fashion outlined for Experiments I and II. In the single trainer condition, the trainer was seated directly across the table from the student and presented all stimuli (including prompts), reinforced correct responses, and scored all trials. The training method was identical to that employed in Experiments I and II, except for the probe procedure, the advancement criteria, and the addition of a formal prompt-fading sequence. All questions were trained in complete sets of three, and probe trials were administered when all responses were correct for three out of five consecutive training cycles within a given session. Two probe trials were conducted for each of the three questions and scored as either correct or incorrect. However, no target responses, prompts, or reinforcement were provided. A training session was terminated after the six probe trials were complete or when an arbitrary limit of six training cycles was reached.

Prompts were faded in volume over the following hierarchy: loud, normal, soft, and none. Training on each set of questions began using loud prompts and proceeded to the next lower level when at least 80% of the training trials in a given session were scored as correct. The same prompt level was used throughout individual sessions, such that at least four sessions were required to reach the terminal level of no prompt.

In order to advance to either of the second phase conditions, the students were required to demonstrate correct responses on at least 80% of probe trials

over two consecutive sessions at the no-prompt level. Otherwise, training in a particular condition was terminated after a total of 10 sessions had been held. The same criteria applied to completion of the second phase conditions.

As in the previous experiments, probe data were gathered across all 20 questions on Friday of each week after all training sessions had been run. Again, the procedure paralleled that described for initial baseline, except that only the first trainer from the dual training conditions participated. Upon the completion of all second phase conditions, follow-up probes were administered in the same manner. The intervals after training were as follows: Carol - 3 days, 10 days, 17 days, 24 days, and 4 months; Mary - 2 days, 9 days, 16 days, 23 days, 30 days, and 4 months.

Reliability

The mean interobserver reliability, using percent agreement (calculated by dividing the number of agreements plus disagreements of independent recorders and multiplying this figure by 100), was 99.1%, ranging from 95.0% to 100.0%.

RESULTS

Carol

Figure 7 shows the results of weekly probes for pre- and post-training of the single trainer, dual trainer, and no training conditions for both letters and pictures. During weekly pre-training probes, Carol did not respond correctly on any items. During post-training, she responded correctly on 43.7% of the weekly probe trial items being trained under the single trainer condition (16.6% for letters and 70.8% for pictures) and on 81.6% of the weekly probe trial items being trained under the dual trainer condition (79.1% for letters and 83.3% for pictures). Carol did not respond correctly on any of

probes corresponding to pre-training and 18.7% of the probes for no training items corresponding to the post training (9.3% for letters and 28.1% for pictures).

Figure 8 shows the results during acquisition on probes given at the completion of training for the single trainer and dual trainer conditions. During the probe trials following the training sessions for letters, Carol had a mean of 35.0% correct responses in the single trainer condition and a mean of 55.5% correct responses in the dual trainer condition. During the probe trials following the training sessions for pictures, she had a mean of 56.6% correct responses in the single trainer condition and a mean of 66.6% correct responses in the dual trainer condition.

Mary

Figure 9 shows the results of weekly probes for pre- and post-testing of the single trainer, dual trainer, and no training conditions for both letters and pictures. During weekly pre-training probes on items that received no training, Mary responded correctly on a mean of 45.8% items (54.1% for letters and 37.5% for pictures) during probes that correlated with pre-training and a mean of 76.6% of the items that correlated with post-training sessions (75.0% for letters and 78.1% for pictures). During post-training, she responded correctly on 60.6% of the weekly probe trial items being trained under the single trainer condition (50.0% for letters and 69.4% for pictures) and on 96.6% of the weekly probe trial items being trained under the dual trainer condition (94.4% for letters and 100.0% for pictures).

Figure 10 shows the results during acquisition on training sessions and probes given at the completion of training for the single trainer and dual trainer conditions. During training sessions for letters, Mary had a mean of 87.9% correct responses in the single trainer condition and a mean of 96.6%

correct responses in the dual trainer condition. During training sessions for pictures, Mary had a mean of 78.2% correct responses in the single trainer condition and a mean of 92.6% correct responses in the dual trainer condition. During the probe trials following the training sessions for pictures, she had a mean of 69.4% correct responses in the single trainer condition and a mean of 96.6% correct responses in the dual trainer condition.

DISCUSSION

The results of Experiment III consistently showed that the dual trainer condition was superior to the single trainer condition. Both Carol's and Mary's results showed that correct responding was greater in the dual trainer condition than in the single trainer condition during weekly probes (which were similar to a single trainer condition), training trials (when prompting was being given), and during probes following training sessions (no prompts were given). These results were consistent for both the letter and picture items.

GENERAL DISCUSSION

The three experiments in this study suggest that the dual training method is an effective procedure for reducing inappropriate verbal responses and increasing appropriate verbal responses. Using dual trainers, possible confusion between questions and prompts was reduced. Thus, the discriminability between task stimuli and prompt stimuli with dual trainers, one presenting the task, the other the prompt, was accentuated. With a single trainer, there was an increased chance for confusion and failure to make the necessary discrimination between task stimuli and prompt stimuli.

A dual training strategy also allows for better control during training sessions. For individuals, who are highly disruptive, the dual trainer method offers a means of providing a highly controlled setting for behavior problems,

while educational programming is being conducted. The trainer, who is giving the prompting, can deal with behavior problems as they arise, and the trainer, who is presenting the task, can prepare materials and record responses.

As was demonstrated, this method of using dual trainers does not require two professional trainers. With appropriate training, paraprofessionals can fill one of the trainer roles. Although this was not demonstrated, both trainers could probably be paraprofessionals, with the necessary training and supervision. This could also be a valuable method to use during in-service teacher training or other professional training programs.

One criticism of using dual trainers, is the possible economic infeasibility of two trainers to one trainee. The results do not indicate that the dual trainer method is twice as efficient as the single trainer method. However, to be able to make such a claim would require at least interval measures. Even though the numbers used (percent correct) are considered to represent an interval scale, the inference that 80% correct is twice as good as 40% correct is tenuous and, at best, only an ordinal inference is appropriate (i.e., 80% correct is better than 40% correct).

This does not mean that the dual trainer method should always be the first choice. This method should be included in the trainer's armamentarium. If the single trainer method is not effective, this may prove to be a useful back-up. In addition, after training with the dual trainer method, the single trainer method may be able to take over with continued training.

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Table 1

Categories of Stimulus Questions

<u>Experiment I</u>	<u>Experiment II</u>	<u>Experiment III</u>
Body Parts	Body Parts	Picture Identification
Picture Identification	Picture Identification	Letter Identification
Numeral Identification	Numeral Identification	
Prepositional Usage	Prepositional Usage	
Social Amenities		

Example of Stimulus Questions

1. Experimenter gives answer statement: "This is a cow."
2. Experimenter asks stimulus question: "Name this picture."
3. Subject gives response: "Cow."

EXPERIMENT I

CAROL

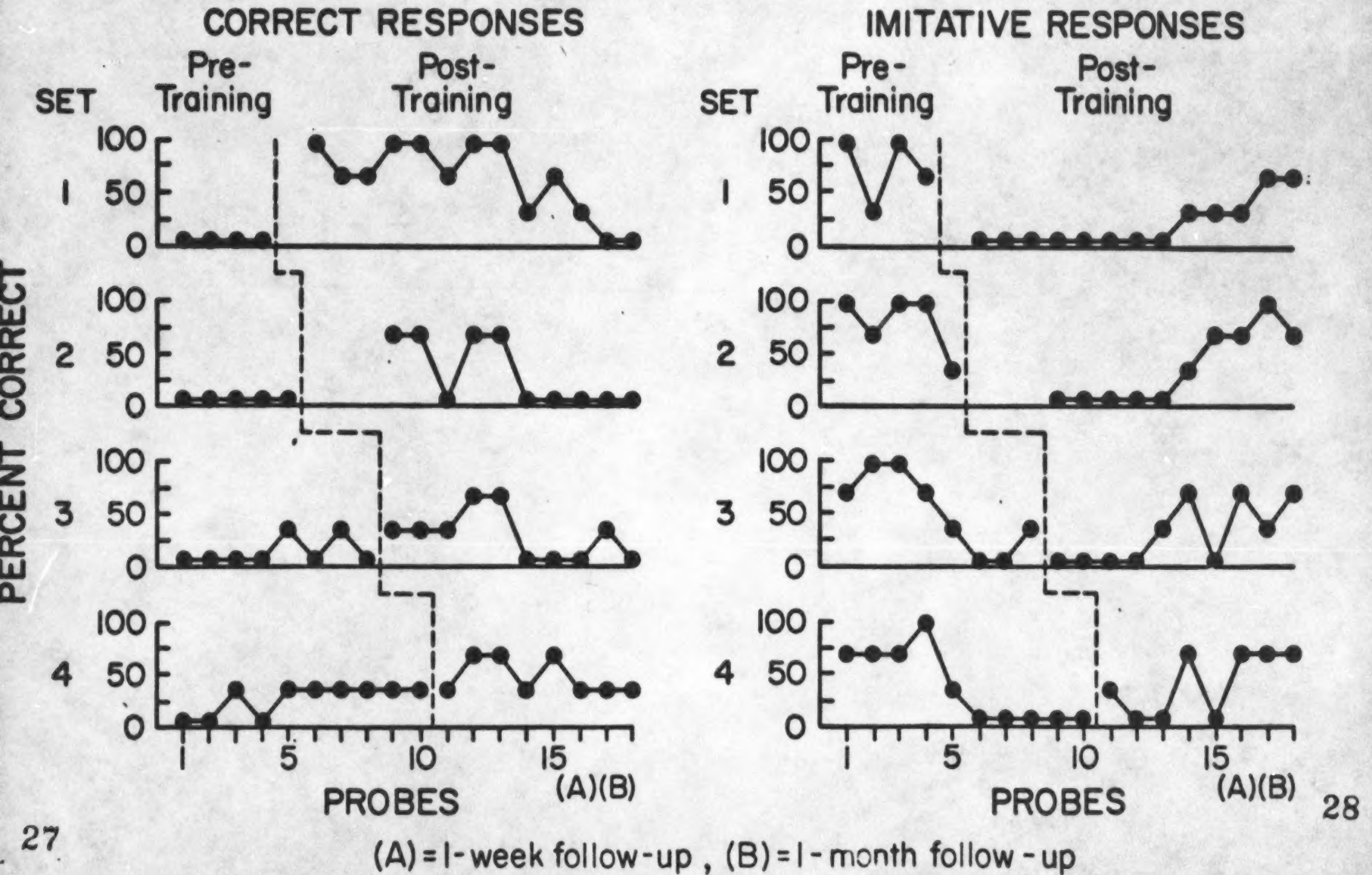


Figure 1. Percent correct during pre- and post-training probes.

EXPERIMENT I

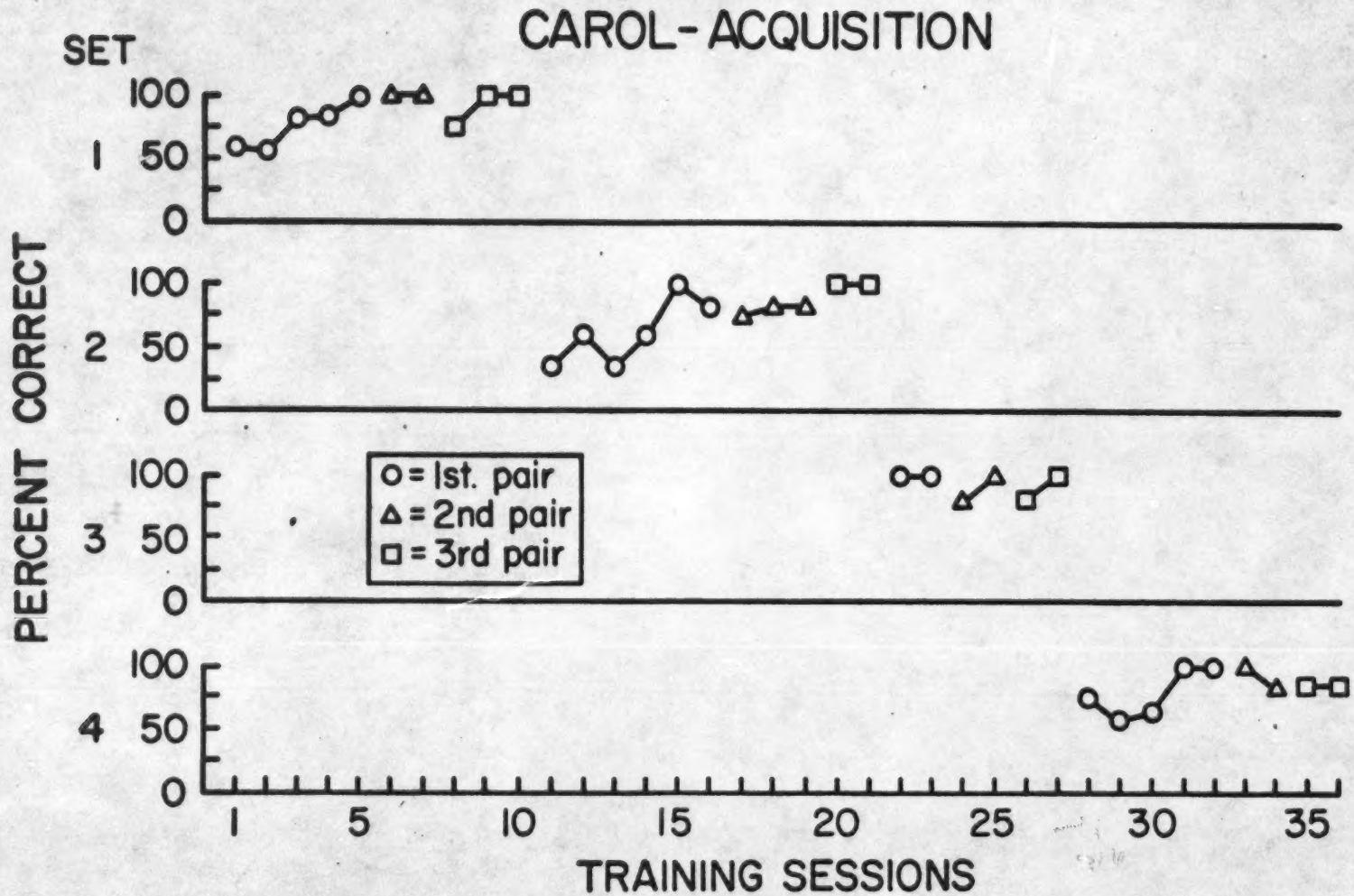


Figure 2. Percent correct during acquisition across the four sets of questions.

MARY

CORRECT RESPONSES

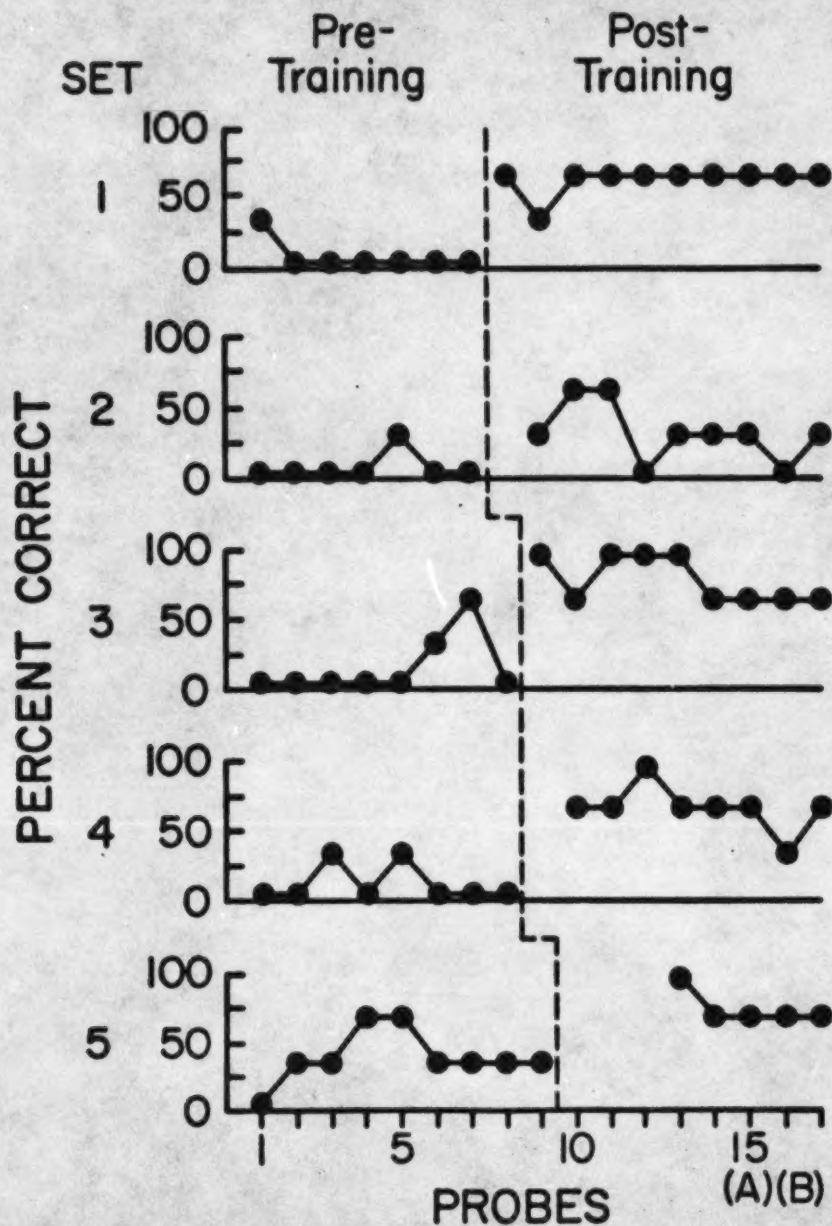


Figure 3. Percent correct during pre- and post-training probes.

(A)=1-week follow-up,
(B)=1-month follow-up

EXPERIMENT I

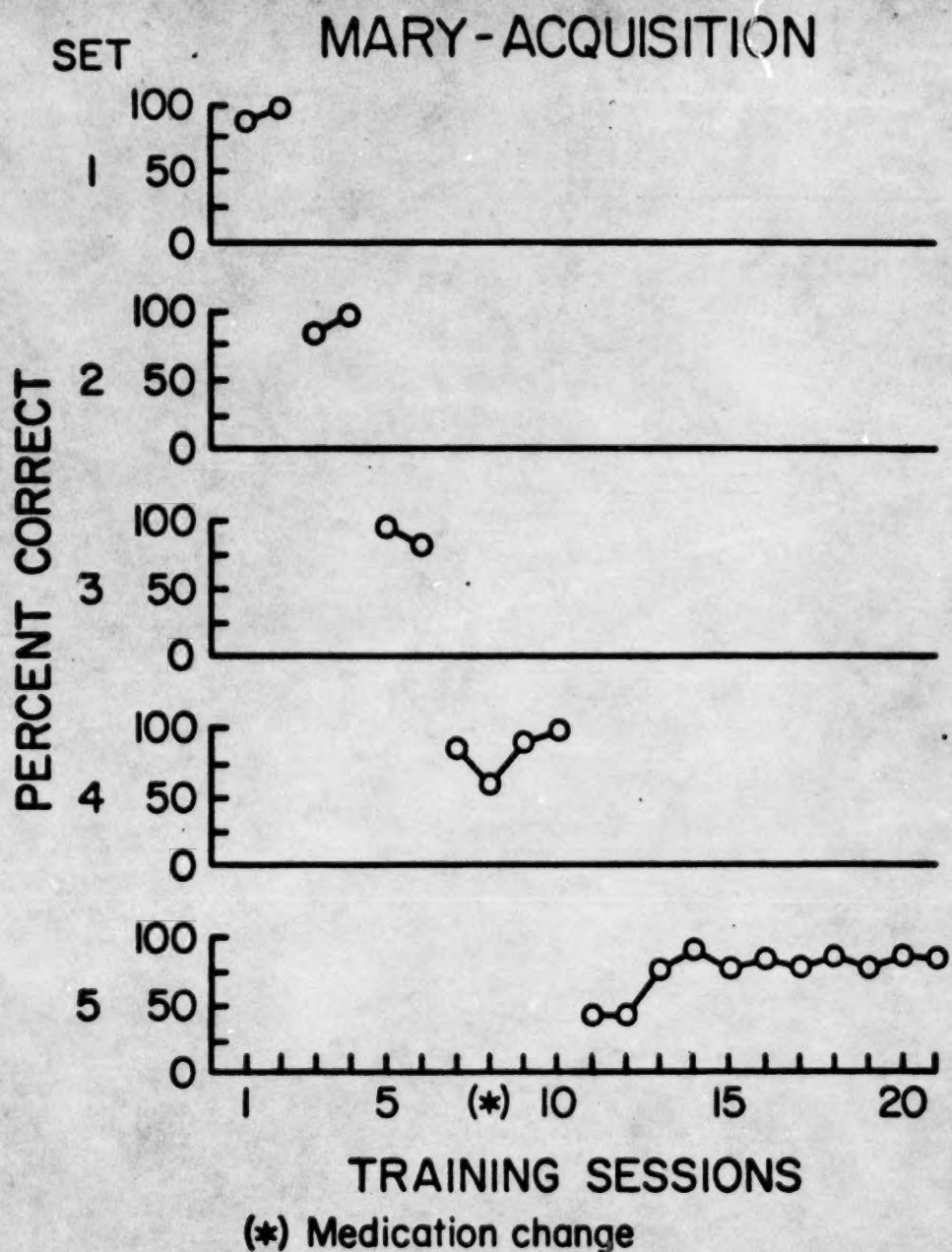
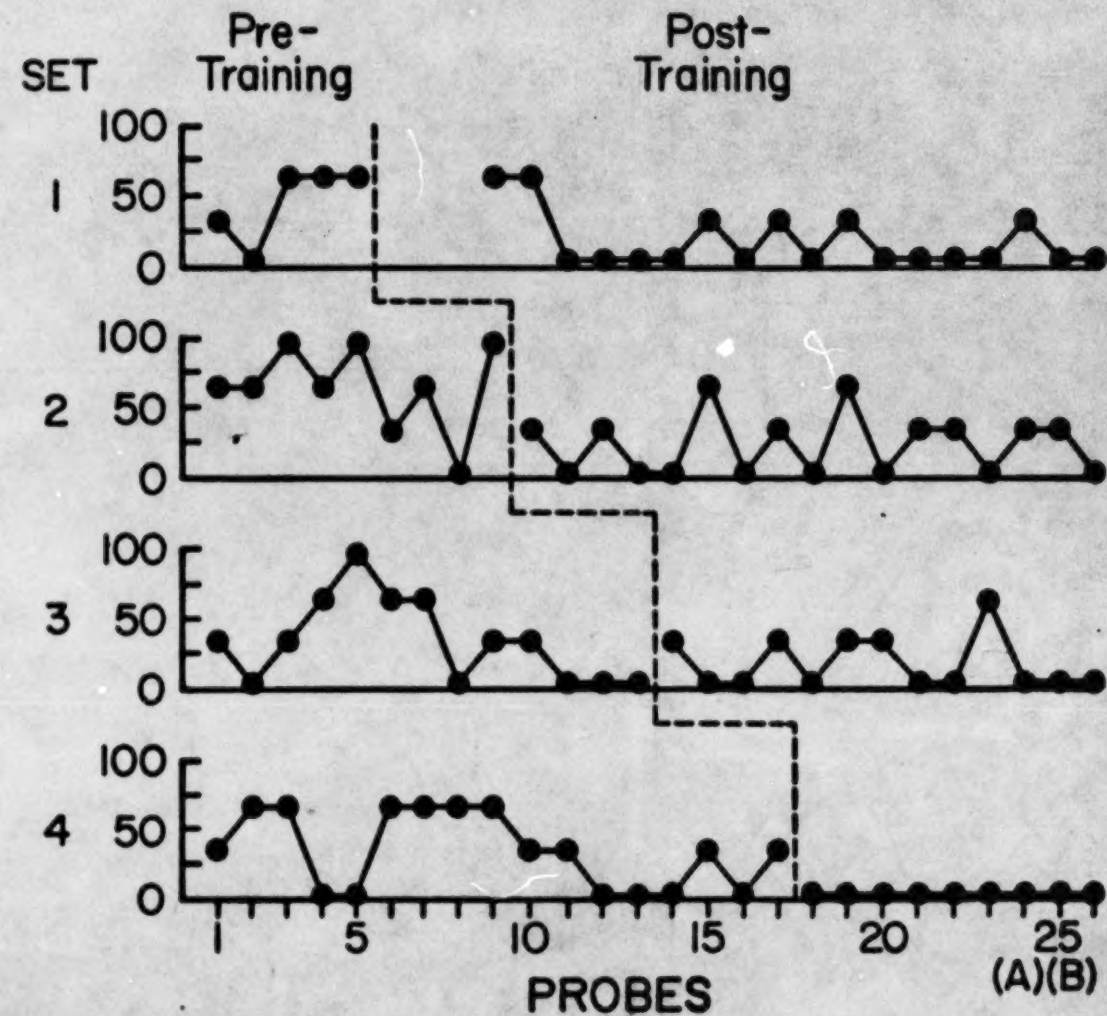
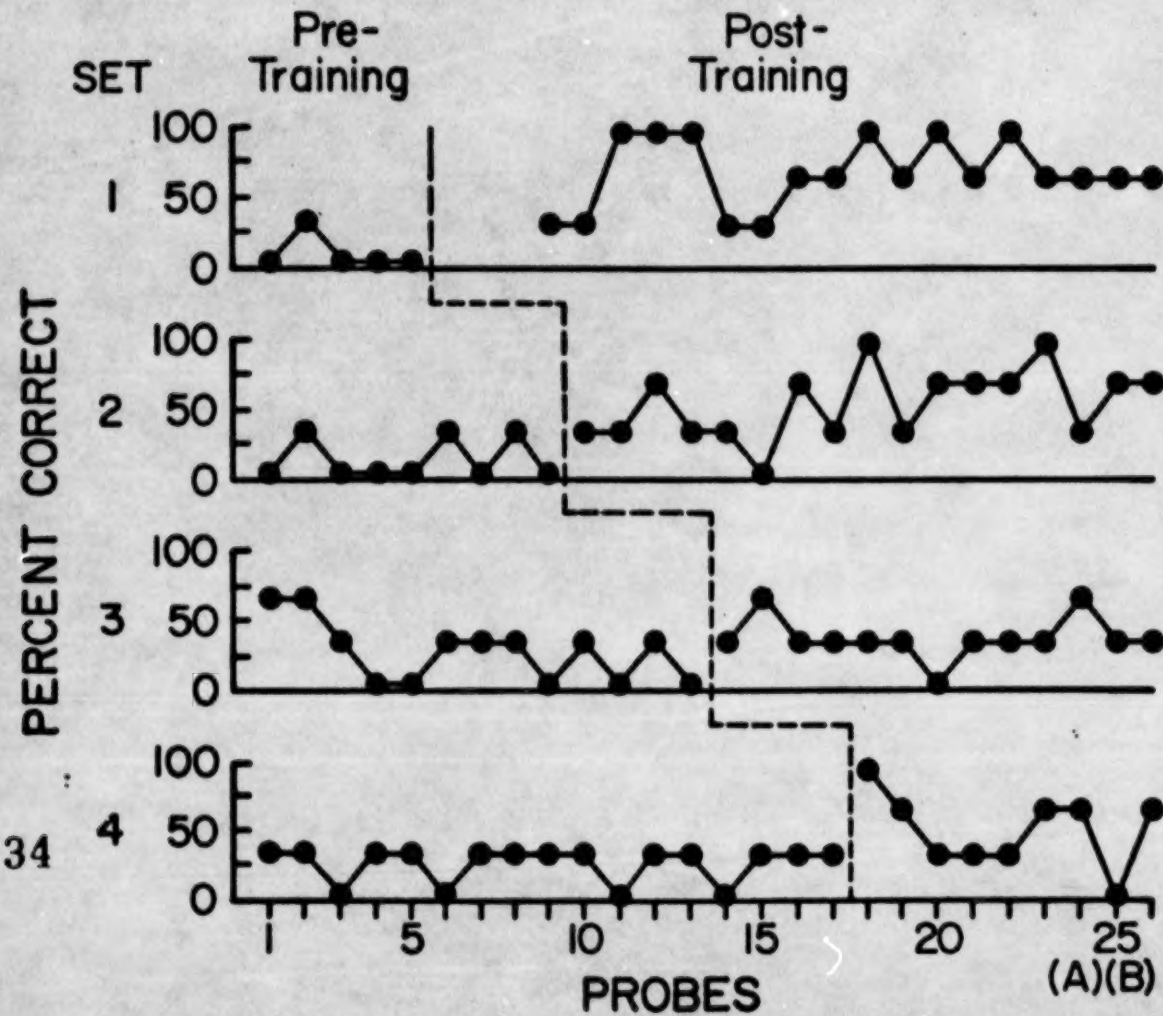


Figure 4. Percent correct during acquisition across the five sets of questions.

JAMES

CORRECT RESPONSES

NO RESPONSE



(A) = 1-week follow-up, (B) = 1-month follow-up

Figure 5. Percent correct during pre- and post-training probes.

EXPERIMENT I

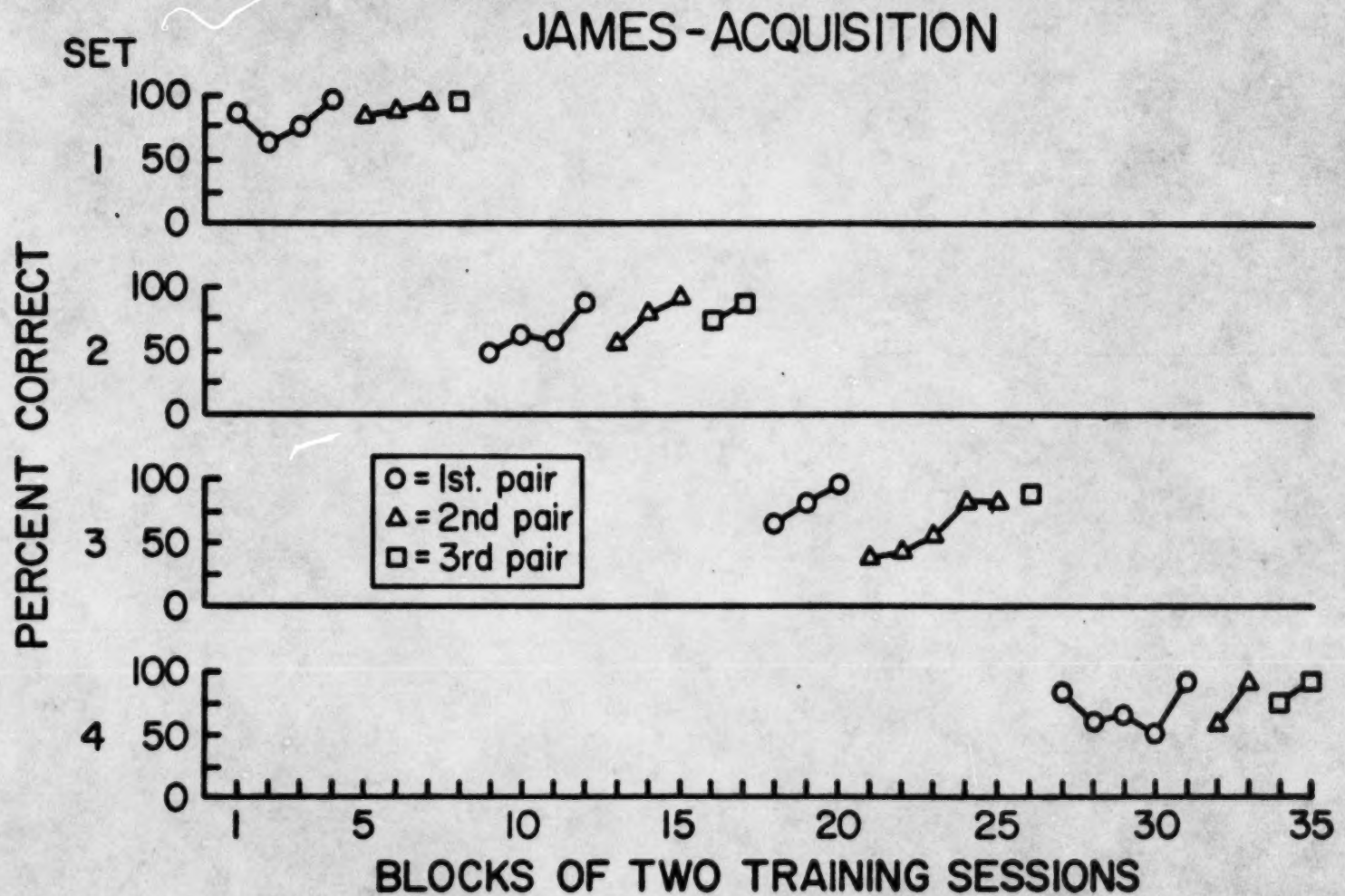


Figure 6. Percent correct during acquisition across the four sets of questions.

EXPERIMENT III

CAROL

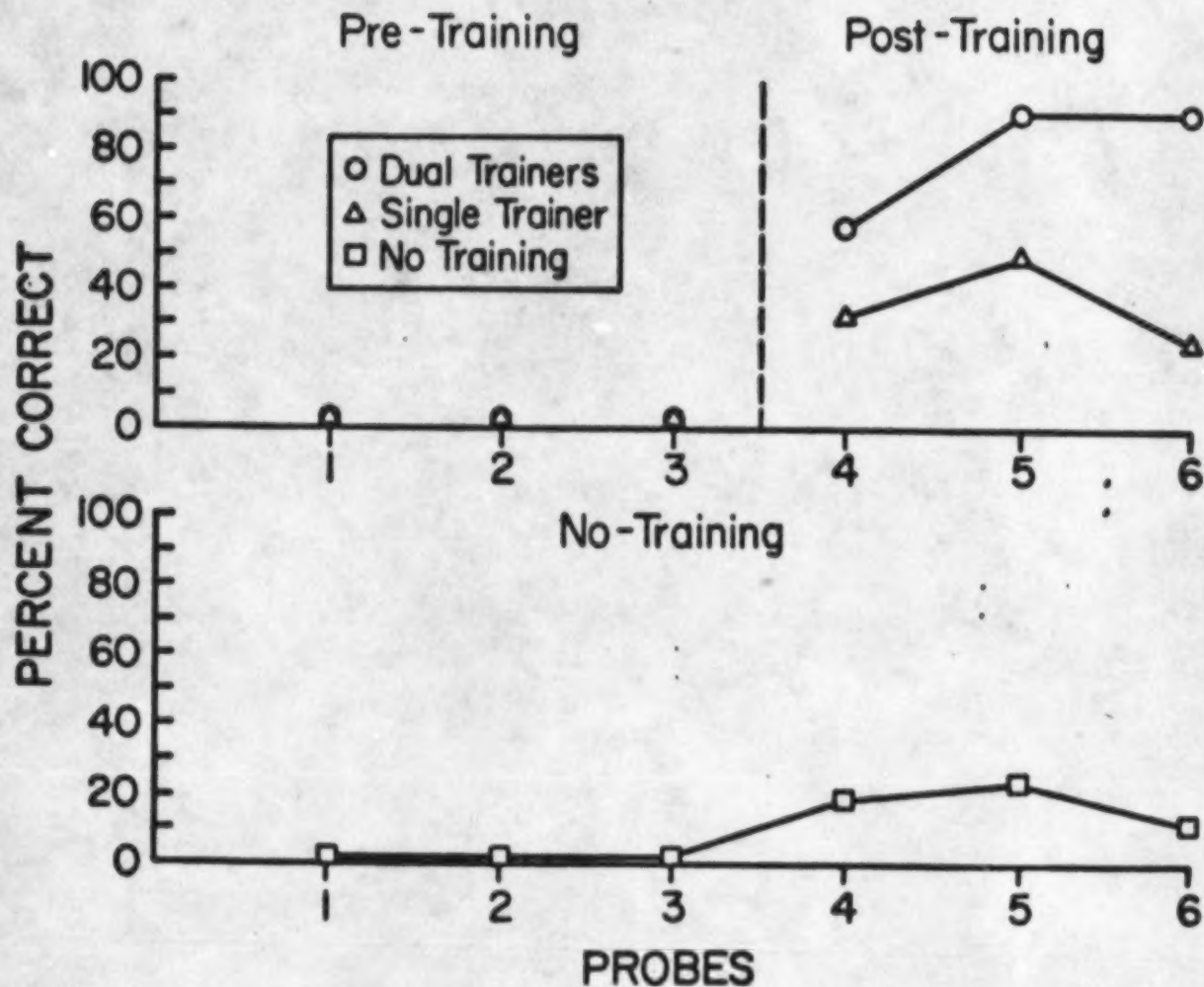


Figure 7. Percent correct of unreinforced pre- and post-training probe trials. The figure shows the combined results of Comparison I and Comparison II.

CAROL

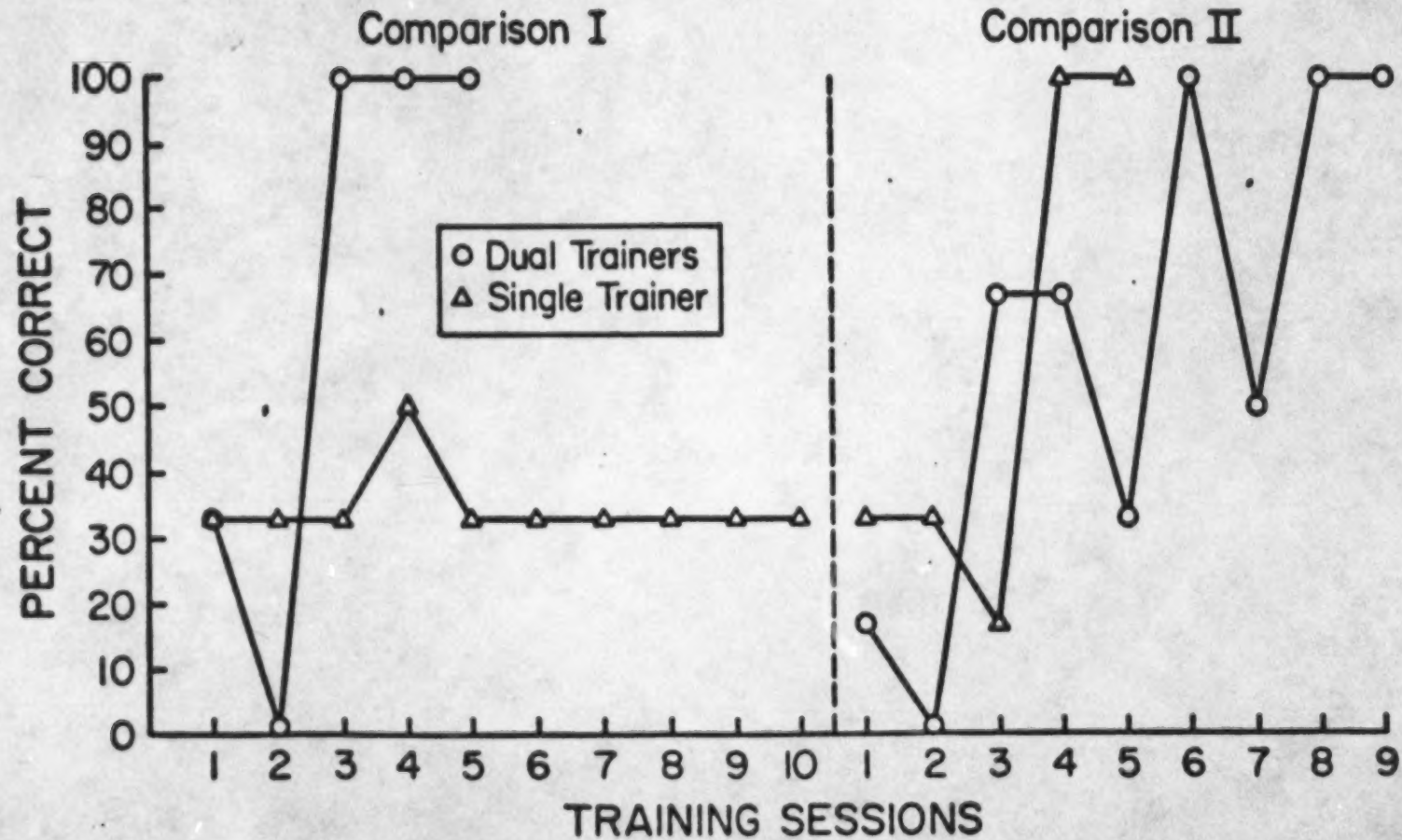


Figure 8. Percent correct of unreinforced probe trials administered during training sessions. Comparison II is a replication of Comparison I using different training items.

EXPERIMENT III

MARY

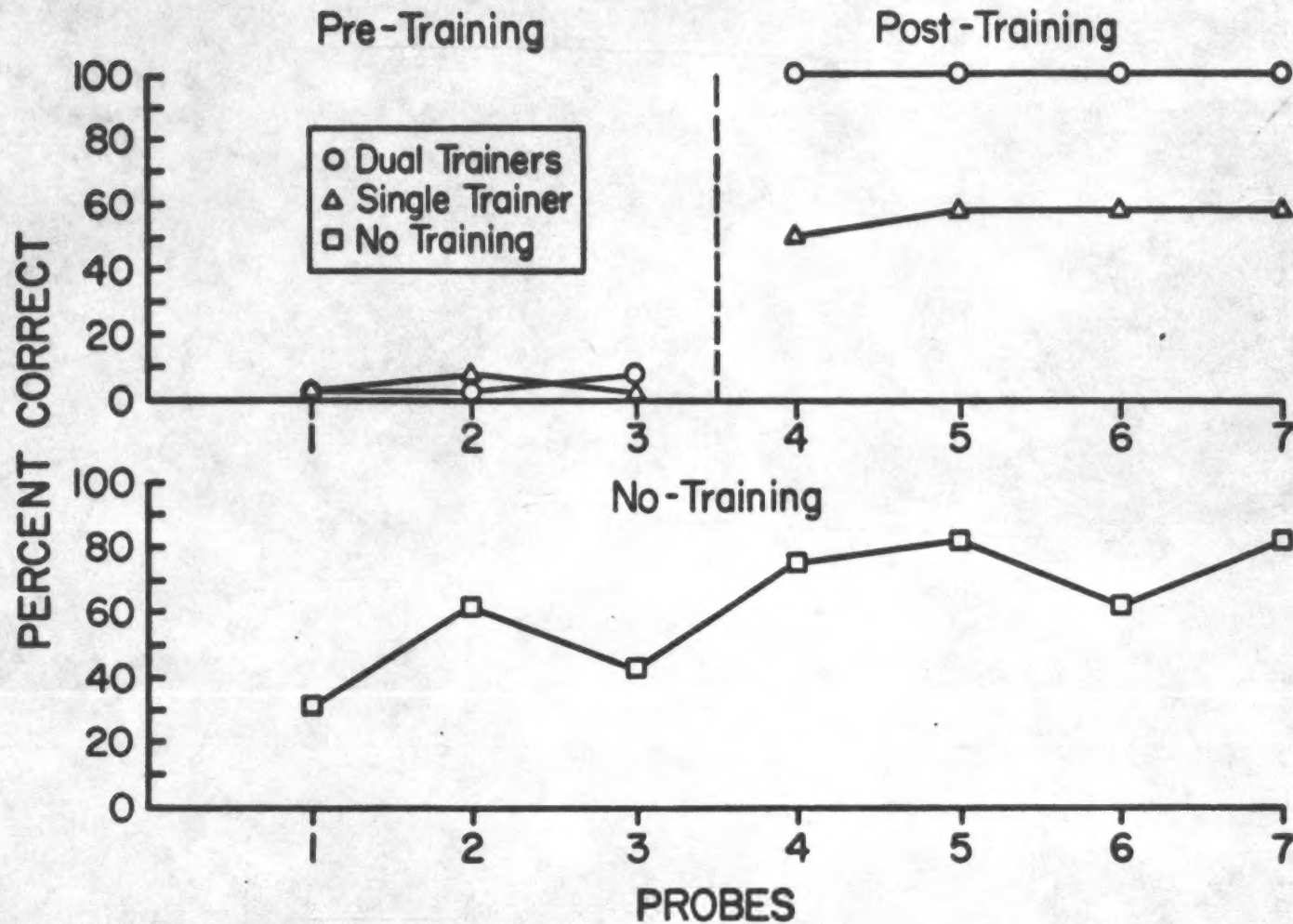


Figure 9. Percent correct of unreinforced pre- and post-training probe trials. The figure shows the combined results of Comparison I and Comparison II.

EXPERIMENT III

MARY

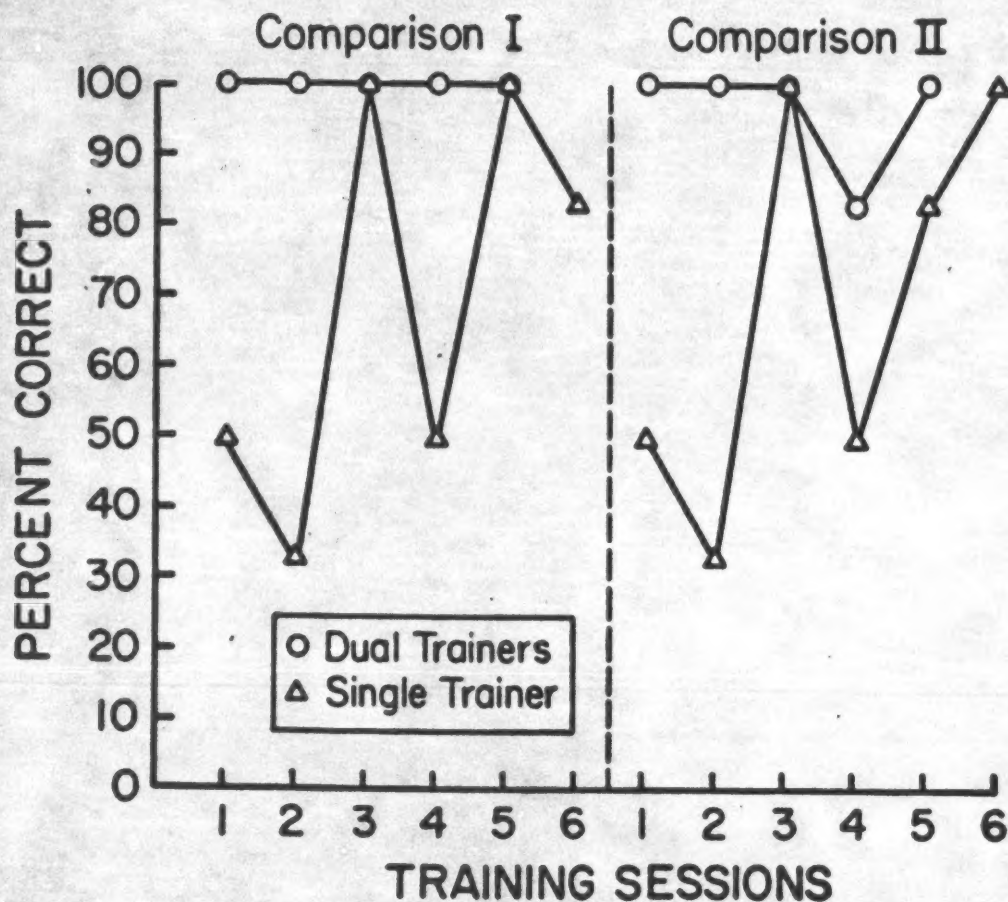


Figure 10. Percent correct of unreinforced probe trials administered during training sessions. Comparison II is a replication of Comparison I using different training items.